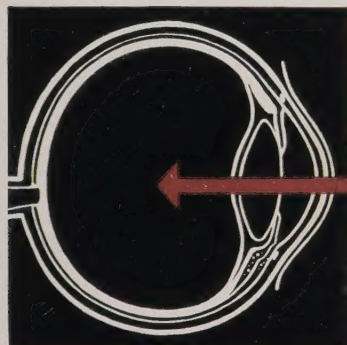


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THAT SEE



AND



ears

THAT HEAR

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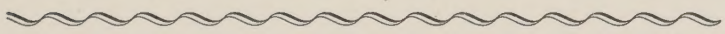


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Eyes That See

AND

Ears That Hear



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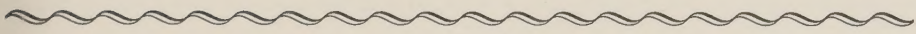
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Eyes That See *and* Ears That Hear

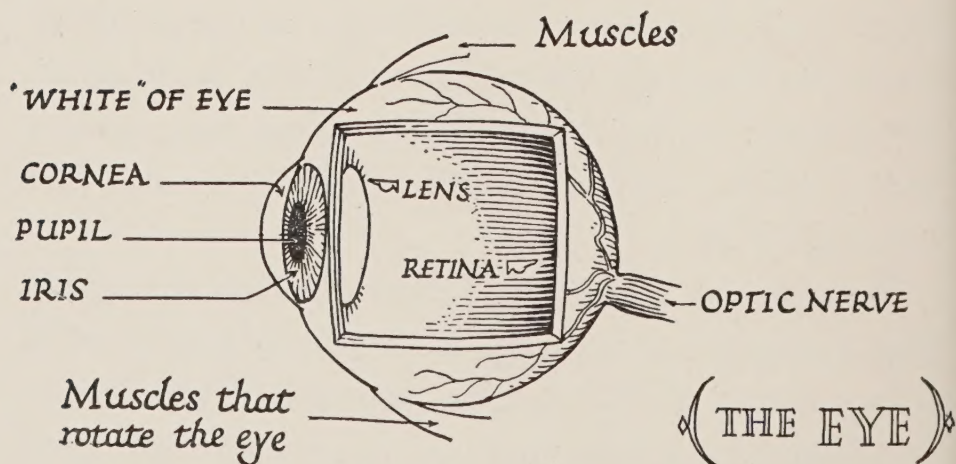


“You never miss the water ’till the well runs dry.” That homely old saying speaks a world of truth. Even drinking water, without which life is impossible, we take for granted—unless our supplies are threatened. Then there is a great to-do. And it is much the same with our eyes and ears. Many of us, happy-go-lucky, pay small heed to these most priceless of our possessions. Only if vision or hearing begin to fail us do we count our blessings. Only then do we try to do something about saving them. The prudent man doesn’t wait “’till the well runs dry” so far as eyes and ears are concerned.

But, you ask, what can a fellow do about saving his own eyesight and hearing? Believe it or not, there is a lot you can do. But to take good care of your eyes—let’s think about them first—you must know how they are made and how they work.

EYES THAT SEE

WE have to use a few scientific terms in even so unscientific a booklet as this. We'll cut the science short. The CORNEA is the clear front of the eye. Behind it is the IRIS, the colored part. The iris changes in size to make the central opening, the PUPIL, larger or smaller—to let in, or shut out, the light. In back of the iris is the LENS which is changed in shape by a ring of muscle attached to the edge. By flattening or rounding out the lens, the muscle focusses the incoming picture upon the sensitive RETINA. The retina is the flattened



A "window" is cut in the side to show the interior.

end of the optic nerve spread out over the back part of the eye. The OPTIC NERVE itself carries the "picture" to the brain, where we really "see".

The eye is often compared to a camera; and with good reason. The chief difference is that instead of moving the lens back-and-forth to focus the image as we do with a camera, the eye muscle has to change the shape of the lens. This is a big job for a very small muscle.

Now that you know how the eye is built, let's be sure you know how it works.

There are four kinds of eyes. If your eyesight is "normal" the eyeball is shaped so the focussing muscle does not have to work at all when you look into the distance. And when you read, it has to focus only a little. In other words you have no eyestrain whether the focus is near or far.

If you are "nearsighted", your eyeball is shaped so that the lens is already in focus for nearby objects, but your eyes cannot see clearly at a distance without the help of glasses. As nearsighted eyes do not have to use the focussing muscles for close work as much as the normal eye does, the muscles do not get enough exercise. They tend to become lazy and unhealthy

without the added work that the distance eyeglass lenses force on them for nearby focussing.

If you are "farsighted" your focussing muscles have to work even when you look into the distance, but they have to work much harder than those in "normal" eyes when you do close work. Farsighted eyes need the assistance that eyeglasses give in all focussing, near or far. They give the overworked eye muscles relief.

If you have "astigmatism" your eyeball is not perfectly round. It is like an orange squeezed a little out of shape. Almost everyone has some astigmatism, but if the "squeezing" is only slight, it does not affect vision. When there is much distortion, things look fuzzy, or slightly crooked. If your astigmatism is marked, the muscles about the lens will work hard trying to correct the trouble and make the picture clear. But this the muscle cannot do. You will have to wear glasses to save the eye muscle from its useless effort.

Any of these three defects of vision can be corrected by properly fitted eyeglasses. If your eyes need this help and through heedlessness, or pride, you fail to get glasses you punish yourself unduly. You can't see as clearly as you should for your own safety and comfort. In addition your eyes, and your whole body, will

tire quickly. Your nerves will be on edge and your disposition will be affected, too. These penalties are a high price to pay for neglect, or for the notion that glasses are unbecoming—or a sign of age!

There are two periods in life when special attention is called for and when eyes are apt to be neglected. They are the early school years and middle age. Though a young child usually has strong focussing muscles which do not tire easily, if a youngster is far-sighted, he needs glasses to give even his young muscles a rest. Though nobody knows what causes far-or-near-sightedness, we know both grow worse if eyes are abused. On the other hand, there are indications that general good health helps nearsighted eyes. So children should be encouraged to get plenty of outdoor recreation, plenty of good food, plenty of sleep. Glasses should be worn all the time if the near-sightedness is marked and should be checked up once a year.

Older people usually have weaker focussing muscles. If you are well past forty and have managed to get along without glasses, it is just good common sense to have your eyes examined now. Most people your age need glasses, at least for reading.

Eyes Suffer From More Than Defective Vision

Eyes are a frequent target for infections. Any suggestion of disease, infectious or otherwise, either outside or inside your eyeball should have the immediate attention of an eye physician. ("Oph-thal-molo-gist" is his professional title.)

Probably the most familiar eyelid trouble is the styel. It is an infection at the root of an eyelash. It causes a swelling on the lid which becomes painful. Dirt blown into the eye, or rubbed in on soiled fingers, or through the second-hand use of a smudged face-towel may start the infection.

The inner lining of the eyelid is called the "conjunctiva", so an inflammation of the lining is called "conjunctivitis". Usually the infection springs from much the same causes as the styel: dirt blown into the eye, or rubbed in by careless habits. Tracoma is a very severe form of conjunctivitis, much harder to treat and much more likely to leave scars.

Each part of the eye may be the seat of disease. The clear front window, the "cornea", may become infected and left cloudy or scarred. The colored part, the

“iris”, may become inflamed—usually the aftermath of infection somewhere else in the body. Most of these conditions, because they are painful from the beginning, get prompt medical attention, but the story may be different in glaucoma.

Here is one disease that may begin without any noticeable discomfort. In glaucoma the eyeball itself slowly hardens. And, as it hardens, the pressure of the fluid in the eye increases. Eventually the pressure of the eye fluid may be great enough to destroy the “retina”, the spread-out end of the optic nerve. Glaucoma is a fairly common condition, more common among women than men and more frequent after 40. It is so often without pain during the early stages that health authorities recommend an eye test for all people past middle age even though no trouble is known to exist. The test for increased pressure is relatively simple, causes no discomfort, and takes only a moment or two. If the disease is discovered early the doctor may be able to save the sight.

There is one other point: the eye sometimes acts as a barometer, foretelling the coming of bodily squalls. Signs of some deep-seated conditions, like hardening of the arteries, may first be detected during eye exami-

nations. This is just one other reason for urging all people past middle age to have their eyes examined.

You Have Obligations to Your Eyes

In addition to seeking medical help when you need it, there are three things you yourself can do.

Keep the skin about the eyes clean by washing frequently with soap and water. Use only clean face towels and wash cloths—*never* anyone's else.



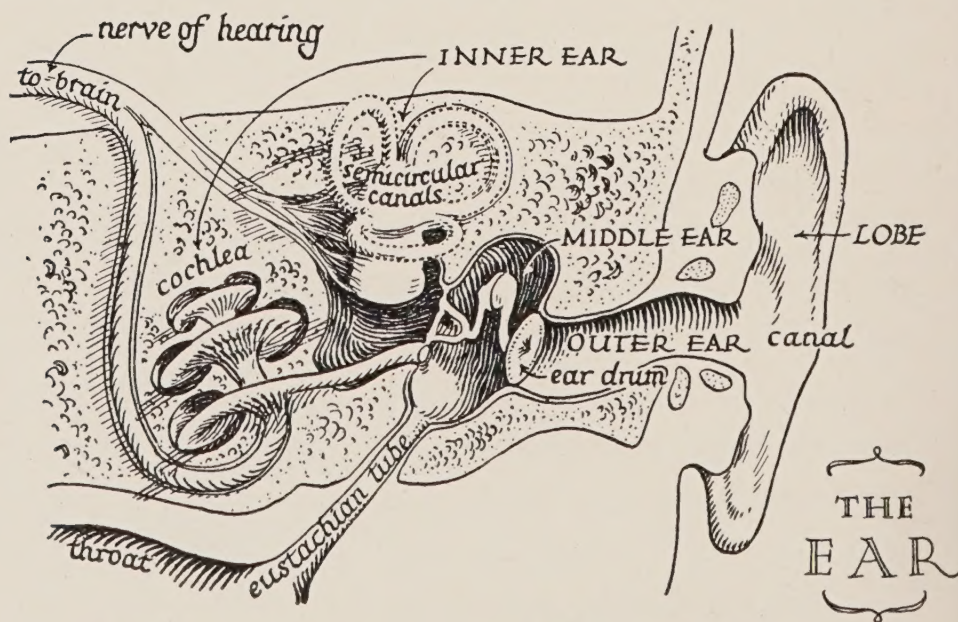
Keep soiled fingers away from your eyes. If dust, or grit, or slivers of metal lodge on the eye or inside the lid, go to your doctor, or to a clinic, or a first aid station to have it removed. Don't dab at it with the corner of a handkerchief. Don't let some other inexperienced person dab at it!

Save your eyes from unnecessary strain. When you read, sit with a good light coming from in back of you, and far enough to the side so that you avoid your own shadow. Indirect lighting is said to be easier on the eyes than a bright beam concentrated on what you are reading. Hold the printed page about a foot and a half from your eyes.



EARS THAT HEAR

WHEN it is a matter of saving eyesight, people are less likely to wait "till the well runs dry" than when hearing is concerned. But hearing, too, means much to safety and success and satisfaction through this life of ours. And there are some things you can do to preserve this gift of nature. To be ready to take good care of your hearing, you will have to learn what the ear is like and how it works.



Cut-away section of the mechanism by which we hear.


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First, just a little anatomy. The LOBE of the ear is not of great importance—except for looks! The CANAL, extending through the lobe almost an inch into the head, is lined with glands that secrete wax. This wax seems intended to prevent entrance by insects. In health, the excess wax moves outward along the canal where it can be removed by ordinary, soap-and-water washing. If the canal becomes filled with wax, go to your doctor (or to a clinic) to have it cleared. He won't gouge out the plug if clearing is necessary, he will float it out by irrigating the canal.

Stretched tight across the inner end of the canal is a membrane, the ear DRUM. In addition to picking up sound waves, the drum guards the middle ear, which is a chamber housing three tiny BONES OF HEARING. The bones are held in place by the most delicate of all muscles. The middle ear is connected to the throat by the EUSTACHIAN tube. This passage allows air to move in and out to equalize the atmospheric pressure. (It is important to remember about this tube for it sometimes allows trouble as well as air to enter the middle ear.)

Still deeper in the head is the inner ear. One part—composed of three SEMI-CIRCULAR CANALS—is the

mechanism by which we balance our bodies. It seems a strange place for such an apparatus, but there it is! The other part is shaped like a snail shell (so it is called the cockle shell or COCHLEA). In it the nerve of hearing is spread out to catch sound impressions and carry them to the brain. So much for anatomy!

Head colds and sore throats sometimes cause ear troubles.\* This is what may happen: the lining of the nose secretes mucus during the early stages of a head cold and this reaches the back of the throat. If the nose is blown violently while the nostrils are pressed together in a handkerchief, the air pressure may push the mucus through the eustachian tubes into the middle ear. (You sometimes feel your ear drums snap when you blow too hard so you realize this might happen.)

If the infectious mucus gets into the middle ear a resulting inflammation may fill the chamber with pus. Then if the lining of the eustachian tube becomes swollen, it closes the tube and the pus is trapped in the ear. The pus presses on the ear drum. This causes intense pain and, possibly, dangerous complications,

\* If you haven't read WINTER ENEMIES which deals with colds, influenza, and pneumonia, write for a copy. It is free. A postcard will do.



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such as mastoiditis. Modern-day drugs have given your doctor much better weapons against ear infections but he may still have to lance the ear drum.

You can help avoid this unpleasant, sometimes highly dangerous condition. When you have a cold, blow your nose gently. Hold your handkerchief loosely and be sure not to press both nostrils shut at the same time. When you can do it without offense, it is safer to snuff the mucus to the back of the throat and spit it out.

### *A Little More About Your Ears*

Impaired hearing often is the result of injury to the nerve itself. And this nerve injury is usually an aftermath of some general disease of the body. Of course, the underlying condition calls for immediate medical care for other reasons than its probable damage to hearing.

In addition to general diseases, the nerve of hearing may be injured by poisons coming from a localized infection, such as a diseased tonsil, or an abscessed tooth. The point is that noticeable deafness should be investigated promptly by an ear doctor\* so that the

\* His professional title is a jaw-breaker—Oto-laryn-gol-o-gist: the first "g" is hard as in "golly".



cause, whatever it may be, can be found and cared for before lasting damage is done to hearing. Though progress of the impairment may be stopped, it is not always possible to restore function completely to the damaged hearing nerve. Don't delay.

### *Help for the Hard of Hearing*

Some middle-aged people are not aware that their hearing has become impaired. Many more know it but put off doing anything about it. They try to guess what their neighbors are saying. They become reconciled to missing the pleasures of good music and good plays.

If your hearing is impaired, don't let self-consciousness deprive you of the great comfort a good hearing aid can give you. You will find life much more worth living. Your friends will enjoy your company much more if they do not have to scream at you.

There are several varieties of electrical hearing aids. Most are worn inside the clothing with only a small inconspicuous part inserted in the ear or pressed against the skin over the bone just behind the ear. Other instruments may be attached to telephones or placed on church or theater seats or on office desks. These latter devices make use of ordinary electric

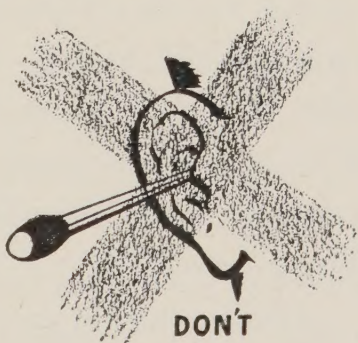
current and give greater amplification than the portable kind.

There is no one instrument best for all hard of hearing people. All hearing impairments are not alike. Some deafened people hear low tones poorly, others miss the higher ones. In selecting just the right hearing aid, you do well to have the advice of your ear doctor. In some cities there are clinics where the deafened person can try many different makes while under expert guidance.

### *Your Duty to Your Ears*

In addition to seeking prompt medical care when ears are inflamed or hearing is impaired, you can do four things to preserve your hearing:

Keep things out of the ear canal.\* If cotton is put in the ear, fibers may become imbedded in wax to start the formation of a plug. Tiny



\* The old saying: "Never stick anything smaller than your elbow in your ear" is really a good rule.



splinters from match sticks may do the same thing. Above all keep hard instruments away. They may scratch the lining and so start an abscess. They may force the wax against the ear drum. If a wax plug forms, have a doctor remove it. He will irrigate the ear and float the wax away.



Ordinary soap-and-water cleanliness outside should be all that is necessary to keep ear canals from being blocked.

When you swim or dive, keep water as much as possible out of the nose and throat. While your face is under water, expel air slowly and continuously through your nose. Breathe in through the mouth, while the head is above-water. Practice in this is more important than learning a fancy "stroke."



After swimming, or while you have a head cold, blow your nose gently, being sure that both nostrils are not pressed tight. This keeps mucus out of the eustachian tubes.



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*This Is About Your Children's Hearing*

A common threat to hearing is inflammation of either adenoids or tonsils. Adenoids are growths of tissue hanging on the back wall of the throat. They tend to disappear late in the teens, but in early childhood they may grow so large that they fill the air passages. Then they may block the eustachian tube, too. Adenoids are frequently inflamed and the infection spreads easily to the ear. They serve no known purpose. If they are overgrown, they should be removed. Your child will look better because he stops breathing through his mouth. He feels better because he suffers less from colds and sore throat.

Inflamed tonsils, too, often cause ear troubles. Tonsils are button-like structures at the sides of the throat in back of the tongue. Apparently nature meant them to catch infections. Trouble is they do, and are often inflamed themselves. From them infection tends to spread to the middle ear.

Modern drugs help cure some sore throats, and older remedies too give relief—even gargling with hot water and salt or bicarbonate of soda may help—but despite all the new and the old remedies, some children still

have greatly enlarged or chronically infected tonsils, which should be removed. If your child needs a tonsil operation, don't put it off. Some day he may pay for your neglect with impaired hearing.

Mastoiditis is another threat to hearing. Parents become panic-stricken when they hear the word, but they are not sufficiently concerned about milder ear infections which sometimes usher it in. Here, too, modern drugs have removed some of the danger, but operations are still called for. If your child faces a mastoid operation, be assured, for it is a well-established procedure now and familiar to every ear doctor. The pain, and pressure, and—more important—the deafness that comes with mastoiditis, quickly recede when the condition is relieved either by modern drugs or operation. So, if your child has an inflamed ear, see to it that he has prompt medical attention by an ear doctor.





*Life Conservation Service of the*

